

WE CLAIM:

1. An independent sustain and address ac plasma panel comprising:

a plurality of X and Y dimension address electrodes, intersections between said address electrodes defining address cells;

a plurality of Y dimension sustain electrodes; each said Y address electrode positioned between and adjacent to at least two sustain electrodes;

address means for applying a signal to selected X and Y address electrodes to discharge at least one address cell, the plasma created by said discharge depositing residual wall charges at discharge sites associated with said two sustain electrodes in dependence upon the voltage existing at said discharge sites;

sustain means for subsequently energizing said sustain electrodes which energization in combination with said residual wall voltages selectively affects the discharge state of one or more said discharge sites;

said address means including a respective MOSFET device connected to each of said X and Y dimension address electrodes; first address generator means coupled to each MOSFET device associated with one of said dimension address electrodes for providing pulses of a first polarity; and second address generator means coupled to each MOSFET device associated with the other of said dimension address electrodes for providing double pulses of a second polarity.

2. An independent sustain and address ac plasma panel
according to claim 1, wherein each of said MOSFET devices is an
open-drain, n-channel device.

3. An independent sustain and address ac plasma panel
according to claim 2, wherein said first address generator means
provides pulses of negative polarity, and said second address
generator means provides double pulses of positive polarity.

4. An independent sustain and address ac plasma panel
according to claim 2, wherein said first address generator means
provides pulses of at least two different amplitude levels, one
amplitude level for writing information into the panel and the
other amplitude level for erasing information from the panel.

5. An ac plasma panel having panel capacitance and comprising:

a plurality of X and Y dimension address electrodes, intersections between said address electrodes defining address cells;

address means for applying a signal to selected X and Y address electrodes to discharge at least one selected address cell associated with said selected electrode and create wall charges at said selected cell;

sustain means for subsequently energizing said address electrodes, which energization in combination with said wall charges at said selected cell discharges said cell, said sustain means including,

an inductor for charging and discharging said panel capacitance;

first switch means remaining closed to enable said panel capacitance to charge through said inductor and responsive to said panel capacitance being substantially fully charged to open and thereby discontinue further charging; and

second switch means remaining closed to enable said panel capacitance to discharge through said inductor and responsive to said panel capacitance being substantially fully discharged to open.

6. An ac plasma panel according to claim 5, wherein said first and second switch means each includes a MOSFET device.

7. An ac plasma panel according to claim 6, wherein
said first and second switch means further includes a diode.

8. An ac plasma panel according to claim 7, wherein
said diode in the first switch means is forward biased until the
panel capacitance is fully charged and then is reverse biased to
discontinue said panel capacitance charging.

9. An ac plasma panel according to claim 7, wherein
said diode in the second switch means is forward biased while the
panel capacitance is being discharged and then is reverse biased
in response to the panel capacitance being fully discharged.

10. An ac plasma panel according to claim 5, wherein
said sustain means includes third switch means connected to said
inductor and said plasma panel and being selectively actuated
during gas discharge of said panel.

11. An ac plasma panel according to claim 10, wherein
said third switch means includes one switch means connected
between one terminal of the sustain power supply and the panel,
and another switch means connected between the other terminal of
the sustain power supply and the panel.

12. An independent sustain and address ac plasma panel comprising:

a plurality of X and Y dimension address electrodes, intersections between said address electrodes defining address cells;

a plurality of Y dimension sustain electrodes; each said Y address electrode positioned between and adjacent to at least two sustain electrodes;

address means for applying a signal to selected X and Y address electrodes to discharge at least one address cell, the plasma created by said discharge depositing residual wall charges at discharge sites associated with said two sustain electrodes in dependence upon the voltage existing at said discharge sites;

sustain means for subsequently energizing said sustain electrodes which energization in combination with said residual wall voltages selectively affects the discharge state of one or more said discharge sites;

said address means including a respective MOSFET device connected to each of said X and Y dimension address electrodes; first address generator means coupled to each MOSFET device associated with one of said dimension address electrodes for providing pulses of a first plurality; and second address generator means coupled to each MOSFET device associated with the other of said dimension address electrodes for providing double pulses of a second polarity; and

said sustain means including an inductor coupled to said sustain electrodes for charging and discharging said panel capacitance; first switch means coupled to said inductor to enable said panel capacitance to charge through said inductor and responsive to said panel capacitance being substantially fully charged.

~~charged to switch open and thereby discontinue further charging,
and second switch means coupled to said inductor and switched
closed to enable said panel capacitance to discharge through said
inductor and responsive to said panel capacitance being fully
substantially discharged to switch open.~~

~~13. An independent sustain and address ac plasma panel according to claim 12, wherein said sustain means includes third switch means connected to said inductor an said plasma panel and being selectively actuated during gas discharge of said panel.~~

~~14. A power efficient driver circuit for driving high voltage display panels having panel electrodes and panel capacitance, said driver circuit comprising:~~

~~an inductor coupled to said panel electrodes for charging and discharging said panel capacitance;~~

~~first switch means coupled to said inductor to enable said panel capacitance to charge through said inductor and responsive to said panel capacitance being substantially fully charged to switch open and thereby discontinue further charging; and~~

~~second switch means coupled to said inductor and switched closed to enable said panel capacitance to discharge through said inductor and responsive to said panel capacitance being substantially fully discharged to switch open.~~

15. An independent sustain and address ac plasma panel comprising:

a plurality of X and Y dimension address electrodes, intersections between said address electrodes defining address cells;

a plurality of Y dimension sustain electrodes, each said Y address electrode positioned between and adjacent to at least two sustain electrodes;

address means for applying a signal to selected X and Y address electrodes to discharge at least one address cell, the plasma created by said discharge depositing residual wall charges at discharge sites associated with said two sustain electrodes in dependence upon the voltage existing at said discharge sites;

sustain means for subsequently energizing said sustain electrodes which energization in combination with said residual wall voltages selectively affects the discharge state of one or more said discharge sites;

said address means including a respective N-channel MOSFET device connected to each of said Y dimension address electrodes; a respective P-channel MOSFET device connected to each of said X dimension address electrodes; first address generator means coupled to each MOSFET device associated with one of said dimension address electrodes for providing pulses of a first polarity; and second address generator means coupled to each MOSFET device associated with the other of said dimension address electrodes for providing pulses of a second polarity.

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